NDCX-II, an Induction Linac for HEDP and IFE Research

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At present the highest priority work for the Heavy Ion Fusion Science Virtual National Laboratory in the USA is to complete the construction of the new Neutralized Drift Compression eXperiment (NDCX-II). The NDCX-II facility is being developed for high energy density physics and inertial fusion energy research. The induction linac in NDCX-II will produce a Li+ beam pulse, at energies of 1.2 - 3 MeV, to heat target material up to the warm dense matter regime (~ 1 eV). By making use of special acceleration voltage waveforms, solenoid focusing, and neutralized drift compression, 20 - 50 nC of beam charge from the ion source will be compressed longitudinally and radially to achieve a sub-nanosecond pulse length and mm-scale spot size at the target. The project status, design principles, engineering realization, and technical progress will be presented.

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